



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,333	10/06/2000	Hiroshi Kubo	1807-126A	3167

6449 7590 02/03/2004

ROTHWELL, FIGG, ERNST & MANBECK, P.C.  
1425 K STREET, N.W.  
SUITE 800  
WASHINGTON, DC 20005

EXAMINER

TRINH, SONNY

ART UNIT	PAPER NUMBER
----------	--------------

2685

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/685,333

Applicant(s)

KUBO, HIROSHI

Examiner

Sonny TRINH

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 October 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4.                      6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. Figure 11 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. **Claims 1-12** are rejected under 35 U.S.C. 102(e) as being anticipated by Solondz ("Solondz"; U.S. Patent Number 6,259,730).

Regarding **claim 1**, with reference to figures 5-6 and their detailed description, Solondz discloses a radio communication system in which a plurality of transmitters (figures 5-6, antennae 301-30n for downlink transmission) transmit same signals with same frequency band (column 2 lines 31-46, columns 3-4) and a receiver receives these signals (column 2 lines 31-46, columns 3-4), characterized in that at least one antenna is provided to each of said transmitters (figures 5-6, antennae 301-30n), and arbitrary delay is given (including a case where no delay is given) to the signals to be transmitted from said antennas so that output power which is different from at least one delay output in the other transmitters is set in each of said transmitters (figure 6, delays 320-32N).

Regarding **claim 2**, Solondz further teaches that when different delays as the arbitrary delays are given (including a case where no delay is given as in figure 6, antenna 301 has no delay while the others have delays) respectively to said plurality of antennas in said transmitters, a combination of output powers which is different from corresponding delay outputs in the other transmitters is set in said respective transmitters (column 3 lines 32-54).

Regarding **claim 3**, Solondz further discloses an equalizer in said receiver demodulates a signal transmitted at least one antenna in each of said transmitters (abstract, claims 1-2, 8-9, 15, column 2 lines 32-46, figure 7 with equalizer 104).

Regarding **claim 4**, with reference to figures 5-6 and their detailed description in columns 3-4, Solondz discloses a radio communication system in which a plurality of

transmitters transmit same signals with same frequency band and a receiver receives these signals (abstract, column 2 lines 32-46), characterized in that,

at least one antenna is provided to each of said transmitters (figure 6), and signals which are supplied to said antennas are signals which are obtained by differently delaying modulated signals (figure 6 and delays 320-32N) and carrying out weighting synthesization on them (column 3 lines 32-54),

at least one of delay amount and weighting factor in each of said transmitters is set to a value different from the other transmitters (delay time  $\Delta$  and delay time  $n\Delta$ , see column 4 lines 39-57).

Regarding **claim 5**, Solondz further teaches the equalizer in said receiver demodulates a signal transmitted from at least one antenna in each of said transmitters (figure 7, see detailed description).

Regarding **claims 6-7**, these claims merely reflect the method claims as opposed to the system claims of claims 4-5 and are therefore rejected for the same reasons.

Regarding **claims 8-9**, with reference to figures 5-6 and their detailed description in columns 3-4, Solondz discloses a transmitter (figure 6, abstract, column 2 lines 32-46) characterized in that in the case where a plurality of transmitters transmit same signals with same frequency band, at least one antenna is provided, and an arbitrary delay (including a case of no delay such as transmitter associated with antenna 301) is given to said antenna so that an output power which is different from at least one delay output in the other transmitters is set (each antenna in figure 6 produce a transmitted signal without delay as in antenna 301, with a delay by time  $\Delta$  associated with antenna

301 and with a different delay by time  $n\Delta$  associated with antenna 30N (see column 4)). Obviously, a combination of output powers which is different from corresponding delay outputs in the other transmitters is set.

Regarding **claim 10**, with reference to figures 5-6 and their detailed description in columns 3-4, Solondz discloses a transmitter characterized in that in the case where a plurality of transmitters transmit same signals with same frequency band (column 2 lines 32-46), at least one antenna is provided (figure 6), and signals which are supplied to respective antennas are signals which are obtained by differently delaying modulated signals (figure 6 modulator 314, and delay units 320, 32N) and by carrying out weighting synthesization on them, and at least one of delay amount and weighting factor is set to a value different from the other transmitters (columns 3-4, delay by time  $\Delta$  associated with antenna 301 and with a different delay by time  $n\Delta$  associated with antenna 30N).

Regarding **claim 11**, with reference to figures 5-6 and their detailed description in columns 3-4, Solondz discloses a transmitter (associated with antenna 301) characterized in that in the case where same signals are transmitted from a plurality of antennas (column 2 lines 32-46), signals which are supplied to said antennas are signals which are obtained by differently delaying modulated signals and by carrying out weighting synthesization on them, and at least one of delay amount and weighting factor is set to different values in said antennas (columns 3-4).

Regarding **claim 12**, with reference to figure 7 and its detailed description in column 4, line 58 to column 5 line 10, Solondz discloses a receiver characterized by

Art Unit: 2685

demodulating (demodulator 102 of figure 7) same signals which are transmitted from a plurality of antennas in a plurality of transmitters (abstract, column 2 lines 32-46.

### ***Citation of Pertinent Prior Art***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Inventor	Publication	Number	Disclosure
Tsujimoto	US Patent	5,859,870	Time diversity transmission reception system.
Chennakeshu et al.	US Patent	6,034,987	System for improving the quality of a received radio signal.
Chennakeshu et al.	PCT	WO 98/27663	System for improving the quality of a received radio signal.

### ***Conclusion***

***Any response to this action should be mailed to:***

*Commissioner of Patents and Trademarks*

*Washington, D.C. 20231*

***or faxed to:***

*(703) 872-9306, (for formal communications intended for entry, for informal or draft communications, please label "PROPOSED" or "DRAFT")*

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, 6<sup>th</sup> Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny Trinh whose telephone number is (703) 305-

Art Unit: 2685

1961. The examiner can normally be reached Monday through Thursdays from 7:00 am to 4:00 p.m., and on alternate Fridays.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 306-0377.

*Sonny Trinh*

Patent Examiner  
1/25/04

**SONNYTRINH**  
**PATENT EXAMINER**

S.T.